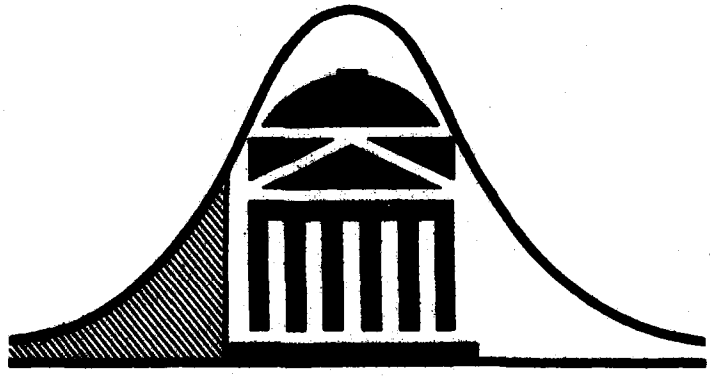
AD-A116 945 SOUTHERN METHODIST UNIV DALLAS TEX DEPT OF STATISTICS F/G 12/1
A BIBLIOGRAPHY FOR THE ABLUE.(U)
JUN 82 R L EUBANK N00014-82-K-0207
UNCLASSIFIED TR-162 NL

END
DATE FILMED
-82
DTIC

AD A116945

SOUTHERN METHODIST UNIVERSITY



DTIC FILE COPY

DTIC
ELECTE
JUL 15 1982
S D
E

DEPARTMENT OF STATISTICS

DALLAS, TEXAS 75275

This document has been approved for public release and sale; its distribution is unlimited.

82 07 15 056

12

A BIBLIOGRAPHY FOR THE ABLUE

by

R. L. Eubank

Technical Report No. 162
Department of Statistics ONR Contract

June 1982

Research sponsored by the Office of Naval Research
Contract N00014-82-K-0207
Project NR 042-479

Reproduction in whole or in part is permitted
for any purpose of the United States Government

This document has been approved for public
release and sale; its distribution is unlimited

Department of Statistics
Southern Methodist University
Dallas, Texas 75275

DTIC
ELECTE
JUL 15 1982
E

A BIBLIOGRAPHY FOR THE ABLUE

by

R. L. Eubank
Department of Statistics, Southern Methodist University, Dallas, Texas 75275

Summary. A bibliography is provided for publications pertaining to the asymptotically best linear unbiased estimators (ABLUE's) of location and scale parameters based on a subset of the sample quantiles and the associated problem of optimal quantile, or spacing, selection. Applications of the estimators to problems of hypothesis testing, percentile estimation and robust statistical inference are also included. A selected set of references is provided which discuss the relationship between the problem of optimal spacing selection and other statistical problems of optimal grouping, regression design for continuous time regression and optimal stratification.

Key Words: Asymptotically best linear unbiased estimator, optimal grouping, optimal spacings, optimal stratification, quantiles.

Accession For
NTIS GRA&I [X]
DTIC TAB [ ]
Unannounced [ ]
Justification
By
Distribution/
Availability Codes
Dist | Avail and/or Special
A
DTIC COPY INSPECTED 3

The ABLUE: a Bibliography

R. L. Eubank

Department of Statistics, Southern Methodist University, Dallas, Texas

The asymptotically best linear unbiased estimators, or ABLUE's, are easily computed location and scale parameter estimates constructed from a subset of the sample quantiles. General formulae for these estimators and their asymptotic relative Fisher efficiencies (ARE's) were developed by Ogawa (1951) motivated, in part, by the work of Mosteller (1946) and Yamanouchi (1949). These estimators are frequently quite efficient, even when based on quantile subsets as small as 5 or 7, provided the quantiles, or equivalently their spacing (i.e., their corresponding percentile points), is chosen correctly. The problem of selecting spacings that provide estimators with maximum ARE's is often called the optimal spacing problem. This problem has developed an extensive literature which includes articles that furnish tabulations of optimal spacings for most of the standard probability laws. Early work on optimal spacing selection (although not explicitly discussed as such) dates back to papers by Sheppard (1899) and Pearson (1920). However, as the computation of optimal spacings requires the solution of a system of nonlinear equations, it is of no surprise that the majority of work on this problem has occurred since the 1960's when high speed computers first began to be widely available.

Provided the user has available tables of optimal spacings for a probability distribution of interest, ABLUE's with high ARE's are readily computed. However, if such information is not available it is necessary to either i) compute the optimal spacings, which may negate the computational advantage of the ABLUE over other possibly more efficient estimators,

or ii) use nonoptimal spacings that may result in a considerable loss of estimator efficiency. Consequently, one objective of this bibliography is to provide the practitioner with a collection of references concerning spacing selection for various standard probability distributions. For this purpose, a listing of references that provide, or discuss how to obtain, optimal or nearly spacings is given, by the distributions to which they pertain, in the appendix. It is also hoped that this bibliography will aid researchers in this field in the identification of open as well as solved problems.

The references include only those relating, or being closely related, to the ABLUE and optimal spacing selection. Thus, material on the best linear unbiased estimator (BLUE) constructed from sample order statistics is excluded except for certain papers which compare properties of BLUE's and ABLUE's. Discussions regarding the BLUE's as well as some of the early work on the ABLUE can be found in Sarhan and Greenberg (1962), Johnson and Kotz (1970a,b) and Harter (1971). A selected set of references pertaining to problems of optimal grouping, stratification and regression design for time series, that are closely related and in some cases equivalent to the optimal spacing problem, are also provided. The emphasis is on papers that either discuss spacing selection or discuss the relationship between two or more of these problems.

A subject classification is added, in brackets, following each reference. This is intended to provide a rough differentiation between the various uses for the ABLUE such as estimation in censored samples, estimation of percentiles, hypothesis testing and robust inference. The following abbreviations are used:

C Provides optimal (or nearly optimal) spacings for censored samples from a particular distribution

D Optimal design for continuous time regression

E Comparison of the properties of BLUE's and ABLUE's

G General theory of the ABLUE and/or optimal spacing selection

GR Optimal grouping

O Other related problems

P Considers optimal (or nearly optimal) spacing selection for the estimation of a percentile using the ABLUE

R Robust procedure(s) involving the ABLUE

S Provides optimal (or nearly optimal) spacings for uncensored samples from a particular distribution

ST Optimal stratification

T Considers spacing selection for hypothesis testing.

It should be noted that the classification 'C' implies 'S' but not conversely.

Undoubtedly omissions and errors exist in this bibliography. Information regarding these would be greatly appreciated by the author.

Research partially supported under ONR Contract N00014-82-K-0207.

References

Adatia, A. and Chan, L. K. (1981). Relations between stratified, grouped and selected order statistics samples. Scand. Actuar. J., 193-202. [GR,G,ST]

Ali, M. M., Umbach, D. and Hassanein, K. M. (1981). Estimation of quantiles of exponential and double exponential distributions based on two order statistics. Commun. Statist.-Theor. Meth. A10(19), 1921-1932. [P]

Balmer, D. W., Boulton, M. and Sack, R. A. (1974). Optimal solutions in parameter estimation problems for the Cauchy distribution. J. Amer. Statist. Assoc. 69, 238-242. [S]

Benson, F. (1949). A note on the estimation of mean and standard deviation from quantiles. J. Roy. Statist. Soc. Ser. B 11, 91-100. [S]

Bloch, D. (1966). A note on the estimation of the location parameter of the Cauchy distribution. J. Amer. Statist. Assoc. 61, 852-855. [S]

Bofinger, E. (1975). Optimal condensation of distributions and optimal spacing of order statistics. J. Amer. Statist. Assoc. 70, 151-154. [GR,G,ST]

Bühler, W. and Deutler, T. (1975). Optimal stratification and grouping by dynamic programming. Metrika 22, 161-175. [GR,ST]

Cane, G. J. (1974). Linear estimation of parameters of the Cauchy distribution based on sample quantiles. J. Amer. Statist. Assoc. 69, 243-245. [S]

Chan, L. K. (1969). Linear quantile estimates of the location and scale parameters of the logistic distribution. Statist. Hefte 10, 277-282. [S]

Chan, L. K. (1970). Linear estimation of the location and scale parameters of the Cauchy distribution based on sample quantiles. J. Amer. Statist. Assoc. 65, 851-859. [S]

Chan, L. K. and Chan, N. N. (1973). On the optimum best linear unbiased estimates of the parameters of the normal distribution based on selected order statistics. Skand. Aktuarietidskr. 56, 120-128. [E]

Chan, L. K., Chan, N. N. and Mead, E. R. (1971). Best linear unbiased estimates of the parameters of the logistic distribution based on selected order statistics. J. Amer. Statist. Assoc. 66, 889-892. [E]

Chan, L. K, Chan, N. N. and Mead, E. R. (1973). Linear estimation of the parameters of the Cauchy distribution using selected order statistics. Utilitas Math. 3, 311-318. [E]

Chan, L. K. and Cheng, S. W. H. (1971). On the Student's test based on sample percentiles from the normal, logistic and Cauchy distributions. Technometrics 13, 127-137. [T]

Chan, L. K. and Cheng, S. (1972). Optimum spacing for the asymptotically best linear estimate of the location parameter of the logistic distribution when samples are complete or censored. Statist. Hefte 13, 41-57. [C]

Chan, L. K. and Cheng, S. W. (1973). On the optimum spacing for the asymptotically best linear estimate of the scale parameter of the Pareto distribution. Tamkang J. Math. 4, 9-21. [C]

Chan, L. K. and Cheng, S. W. (1974). An algorithm for determining the asymptotically best linear estimate of the mean from multiply censored logistic data. J. Amer. Statist. Assoc. 69, 1027-1030. [C,G]

Chan, L. K., Cheng, S. W. H. and Mead, E. R. (1972). An optimum t-test for the scale parameter of an extreme value distribution. Naval Res. Logist. Quart. 19, 715-723. [T]

Chan, L. K., Cheng, S. W. and Mead, E. R. (1974). Simultaneous estimation of location and scale parameters of the Weibull distribution. IEEE Trans. Reliab. R-23, 335-341. [E]

Chan, L. K., Cheng, S. W. H., Mead, E. R. and Panjer, H. H. (1973). On a t-test for the scale parameter based on sample percentiles. IEEE Trans. Reliab. R-22, 82-87. [T]

Chan, L. K. and Kabir, A. B. M. L. (1969). Optimum quantiles for the linear estimation of the parameters of the extreme value distribution in complete and censored samples. Naval Res. Logist. Quart. 16, 381-404. [C]

Chan, L. K. and Mead, E. R. (1971). Linear estimation of the parameters of the extreme value distribution based on suitably chosen order statistics. IEEE Trans. Reliab. R-20, 74-83. [E]

Chan, L. K. and Rhodin, L. S. (1980). Robust estimation of location using optimally chosen sample quantiles. Technometrics 22, 225-237. [S,R]

Cheng, S. W. (1975). A unified approach to choosing optimum quantiles for the ABLE's. J. Amer. Statist. Assoc. 70, 155-159. [C,G]

Cheng, S. W. (1978). Linear quantile estimation of parameters of the double exponential distribution. Soochow J. Math. 4, 39-49. [C]

Cheng, S. W. (1980a). On the ABLUE and the optimum T-test of the parameter of Rayleigh distribution. Tamkang J. Math. 11, 11-17. [C,T]

Cheng, S. W. (1980b). On the ABLUE of the normal mean from a censored sample. J. Statist. Plann. Inference 4, 259-265. [C]

Chernoff, H. (1971). A note on optimal spacings for systematic statistics. Tech. Rep. No. 70, Dept. of Statist., Stanford Univ., Stanford, California. [S]

Cox, D. R. (1957). Note on grouping. J. Amer. Statist. Assoc. 52, 543-547. [G,GR]

Dalcher, A. (1955). Statistische schätzungen mit quantilen. Mitt. Verein. Schweiz. Versicherungsmath. 55, 475-498. [S]

Dubey, S. D. (1967). Some percentile estimators for Weibull parameters. Technometrics 9, 119-129. [S]

Ekman, G. (1969). A graphical solution for the determination of an optimal stratification or grouping, with an example concerning a problem of maximizing sales revenues. Review Int. Statist. Inst. 37, 186-193. [GR,ST]

Eisenberger, I. and Posner, E. C. (1965). Systematic statistics used for data compression in space telemetry. J. Amer. Statist. Assoc. 60, 97-133. [S,T]

Eubank, R. L. (1979). A density-quantile function approach to choosing order statistics for the estimation of location and scale parameters. Tech. Rep. No. A-10, Texas A&M Univ., College Station, Texas. [D,S,G,P]

Eubank, R. L. (1981a). A density-quartile function approach to optimal spacing selection. Ann. Statist. 9, 494-500. [D,C,G,P]

Eubank, R. L. (1981b). Estimation of the parameters and quantiles of the logistic distribution by linear functions of sample quantiles. Scand. Actuar. J.,229-236. [S,P]

Eubank, R. L. (1981c). A regression design approach to optimal and robust spacing selection. Tech. Rep. No. 144, Dept. of Statist., Southern Methodist Univ., Dallas, Texas. [D,G,R]

Eubank, R. L., Smith, P. L. and Smith, P. W. (1981). Uniqueness and eventual uniqueness of optimal designs in some time series models. Ann. Statist. 9, 486-493. [D,G]

Eubank, R. L., Smith, P. L., and Smith, P. W. (1982). On the computation of optimal designs for certain time series models with applications to optimal quantile selection for location or scale parameter estimation. SIAM J. Sci. Statist. Comput., to appear. [D,G]

Gastwirth, J. L. (1966). On robust procedures. J. Amer. Statist. Assoc. 61, 929-948. [G,GR]

Govindarajulu, Z. and Rao, J. N. K. (1968). Asymptotically best estimator of scale based on two symmetric quantiles. Sankhyā A 30, 335-336. [S]

Gupta, S. S. and Gnanadesikan, M. (1966). Estimation of the parameters of the logistic distribution. Biometrika 53, 565-570. [S]

Harter, H. L. (1971). Some optimizing problems in parameter estimation. In: Optimizing Methods in Statistics (J. S. Rustagi, ed.), Academic Press, New York, 33-62. [G]

Hassanein, K. M. (1968). Analysis of extreme-value data by sample quantiles for very large samples. J. Amer. Statist. Assoc. 63, 877-888. [S,P]

Hassanein, K. M. (1969a). Estimation of the parameters of the extreme value distribution by use of two or three order statistics. Biometrika 56, 429-436. [S]

Hassanein, K. M. (1969b). Estimation of the parameters of the logistic distribution by sample quantiles. Biometrika 56, 684-687. [S]

Hassanein, K. M. (1971). Percentile estimators for the parameters of the Weibull distribution. Biometrika 58, 673-676. [S]

Hassanein, K. M. (1972). Simultaneous estimation of the parameters of the extreme value distribution by sample quantiles. Technometrics 14, 63-70. [S,P]

Hassanein, K. M. (1974). Linear estimation of the parameters of the logistic distribution by selected order statistics for very large samples. Statist. Hefte 15, 65-70. [S]

Hassanein, K. M. (1977). Simultaneous estimation of the location and scale parameters of the gamma distribution by linear functions of order statistics. Scand. Actuar. J., 88-93. [S]

Higuchi, I. (1954). On the solutions of certain simultaneous equations in the theory of systematic statistics. Ann. Inst. Statist. Math. 5, 77-90. [S]

Johnson, N. L. and Kotz, S. (1970a). Distributions in Statistics: Continuous Univariate Distributions-1. Houghton Mifflin Company, Boston. [G]

Johnson, N. L. and Kotz, S. (1970b). Distributions in Statistics: Continuous Univariate Distributions-2. Houghton Mifflin Company, Boston. [G]

Kaminsky, K. S. and Nelson, P. I. (1975). Best linear unbiased prediction of order statistics in location and scale families. J. Amer. Statist. Assoc. 70, 145-150. [O]

Koutrouvelis, I. A. (1981a). Large-sample quantile estimation in Pareto laws. Commun. Statist.-Theor. Meth. A10(2), 189-201. [O]

Koutrouvelis, I. A. (1981b). Estimation of location and scale in Cauchy distributions using the empirical characteristic function. Working paper No. 3, Inst. of Statist., Dept. of Math. Sciences, Virginia Commonwealth Univ., Richmond, Virginia. [O]

Kulldorff, G. (1961). Contributions to the Theory of Estimation from Grouped and Partially Grouped Samples, Almqvist and Wiksell, Stockholm. [GR,ST]

Kulldorff, G. (1962). On the asymptotically optimum spacings for the exponential distribution. Mimeographed report, Dept. of Statist., Univ. of Lund, Sweden. [S]

Kulldorff, G. (1963a). On the optimum spacing of sample quantiles from an exponential distribution. Mimeographed report, Dept. of Statist., Univ. of Lund, Sweden. [S]

Kulldorff, G. (1963b). On the optimum spacing of sample quantiles from a normal distribution. Part I. Skand. Aktuarietidskr. 46, 143-156. [S]

Kulldorff, G. (1964a). On the optimum spacing of sample quantiles from a normal distribution. Part II. Skand. Aktuarietidskr. 47, 71-87. Errata, Skand. Aktuarietidskr. 55, 107. [S,O]

Kulldorff, G. (1964b). Optimum spacing of sample quantiles from a logistic distribution and best linear unbiased estimates of its parameters. Mimeographed report, Dept. of Statist., Univ. of Lund, Sweden. [S]

Kulldorff, G. (1973). A note of the optimum spacing of sample quantiles from the six extreme value distributions. Ann. Statist. 1, 562-567. [C]

Kulldorff, G. and Vännman, K. (1973). Estimation of the location and scale parameters of a Pareto distribution by linear functions of order statistics. J. Amer. Statist. Assoc. 68, 218-227. [S]

Mosteller, F. (1946). On some useful "inefficient" statistics. Ann. Math. Statist. 17, 377-408. [G,S]

Ogawa, J. (1951). Contributions to the theory of systematic statistics, I. Osaka Math. J. 3, 175-213. [G,S,T]

Ogawa, J. (1952). Contributions to the theory of systematic statistics, II. Osaka Math. J. 4, 41-68. [O]

Ogawa, J. (1960). Determination of optimum spacings for the estimation of the scale parameter of an exponential distribution based on sample quantiles. Ann. Inst. Statist. Math. 12, 135-141. [S]

Ogawa, J. (1977a). A note on the optimal spacing of systematic statistics-normal distribution. In: Essays in Probability and Statistics in Honor of J. Ogawa, Shinko Tsusho Co., Tokyo, 467-474. [S]

Ogawa, J. (1977b). Optimal spacings for the simultaneous estimation of the location and scale parameters of a normal distribution based on selected two sample quantiles. J. Statist. Plann. Inference 1, 61-72. [S]

Pearson, K. (1920). On the probable error of frequency constants. Part III. Biometrika 13, 113-132. [S]

Rhodin, L. S. (1975). On the optimum spacing of sample quantiles for estimating the location and scale parameters of a gamma distribution. Statist. Res. Rep. No. 1975-11, Inst. of Math. and Statist., Univ. of Umeå, Sweden. [S]

Rhodin, L. S. (1976a). On the optimum spacing of sample quantiles for the ABLUE. Statist. Res. Rep. No. 1976-1, Inst. of Math. and Statist., Univ. of Umeå, Sweden. [G]

Rhodin, L. S. (1976b). On the optimum spacing of sample quantiles for estimating the location and scale parameters of a gamma distribution II. Statist. Res. Rep. No. 1976-6, Inst. of Math. and Statist., Univ. of Umeå, Sweden. [S]

Rhodin, L. S. (1976c). Optimum spacing for the ABLUE of location or scale parameters in Tukey's lambda distribution Statist. Res. Rep. No. 1976-9, Inst. of Math. and Statist., Univ. of Umeå, Sweden. [G]

Rhodin, L. S. (1976d). Comparison of asymptotically best linear unbiased predictors of order statistics. Statist. Res. Rep. No. 1976-10, Inst. of Math. and Statist., Univ. of Umeå, Sweden. [O]

Saleh, A. K. Md.E. (1966). Estimation of the parameters of the exponential distribution based on optimum order statistics in censored samples. Ann. Math. Statist. 37, 1717-1735. [C]

Saleh, A. K. Md.E. (1981). Estimating quantiles of exponential distribution. In: Statistics and Related Topics (M. Csörgő, D. A. Dawson, J. N. K. Rao, A. K. Md.E. Saleh, eds.), North Holland Publishing Co., 145-151. [P]

Saleh, A. K. Md.E. and Ali, M. M. (1966). Asymptotic optimum quantiles for the estimation of the parameters of the negative exponential distribution. Ann. Math. Statist. 37, 143-151. [S]

Saleh, A. K. Md.E., Ali, M. M. and Umbach, D. (1981a). Estimating the quantile function of location-scale family of distributions based on few selected order statistics. In: A Collection of Three Papers on Estimation of Quantiles Based on Selected Order Statistics, Carleton Mathematical Lecture Note No. 35-1981. [P]

Saleh, A. K. Md.E., Ali, M. M. and Umbach, D. (1981b). Large sample estimation of Pareto quantiles using selected order statistics. In: A Collection of Three Papers on Estimation of Quantiles Based on Selected Order Statistics, Carleton Mathematical Lecture Note No. 35-1981. [O]

Sarhan, A. E. and Greenberg, B. G., eds. (1962). Contributions to Order Statistics, John Wiley, New York. [G,S,T]

Sarhan, A. E., Greenberg, B. G. and Ogawa, J. (1963). Simplified estimates for the exponential distribution. Ann. Math. Statist. 34, 102-116. [S]

Särndal, C. E. (1961). On a maximizing problem with several applications in statistical theory. Ark. Mat. 4, 385-392. [G,GR,S,ST]

Särndal, C. E. (1962). Information from Censored Samples, Almqvist and Wiksell, Stockholm. [G,GR,S,ST]

Särndal, C. E. (1964). Estimation of the parameters of the gamma distribution by sample quantiles. Technometrics 6, 405-414. [S]

Sheppard, W. F. (1899). On the application of the theory of error to cases of normal distribution and normal correlation. Philos. Trans. Roy. Soc. London Ser. A 192, 101-167. [S]

Stout, H. P. and Stern, F. (1961). Estimation from quantiles in destructive testing. J. Roy. Statist. Soc. Ser. B 23, 434-443. [O]

Umbach, D., Ali, M. M. and Hassanein, K. M. (1981). Estimating Pareto quantiles using two order statistics. Commun. Statist.-Theor. Meth. A10(19), 1933-1941. [P]

Yamanouchi, Z. (1949). Estimates of mean and standard deviation of a normal distribution from linear combinations of some chosen order statistics. Bull. Math. Statist. 3, 52-57. [G,S]

Classification of References by Distribution

Cauchy distribution

Balmer, Boulton and Sack (1974)
Bloch (1966)
Cane (1974)
Chan (1970)
Chan, Chan and Mead (1973)
Chan and Cheng (1971, 1974)
Chan, Cheng, Mead and Panjer (1973)
Dalcher (1955)
Eubank (1979)
Govindarajulu and Rao (1968)

Double exponential distribution

Ali, Umbach and Hassanein (1981)
Cheng (1978)
Saleh, Ali and Umbach (1981a)

Exponential distribution

Ali, Umbach and Hassanein (1981)
Chan and Cheng (1974)
Cheng (1975)
Dalcher (1955)
Eubank (1979, 1981a)
Kulldorff (1962, 1963a)
Ogawa (1960)
Saleh (1966, 1981)
Saleh and Ali (1966)
Saleh, Ali and Umbach (1981a)
Sarhan and Greenberg (1962)
Sarhan, Greenberg and Ogawa (1963)
Särndal (1961, 1962)

Extreme value distribution

Chan and Cheng (1974)
Chan, Cheng and Mead (1972)
Chan and Kabir (1969)
Chan and Mead (1971)
Cheng (1975)
Eubank (1979, 1981a)
Hassanein (1968, 1969a, 1972)
Kulldorff (1973)
Särndal (1962)

Gamma distribution

Dalcher (1955)
Hassanein (1977)
Rhodin (1975, 1976b)
Särndal (1964)

(Tukey's) Lambda distribution

Chan and Rhodin (1980)
Rhodin (1976c)

Logistic distribution

Chan (1969)
Chan, Chan and Mead (1971)
Chan and Cheng (1971, 1972, 1974)
Chan, Cheng, Mead and Panjer (1973)
Cheng (1975)
Eubank (1979, 1981a,b)
Gupta and Gnanadesikan (1966)
Hassanein (1969b, 1974)
Kulldorff (1964b)
Särndal (1962)

Lognormal distribution

Eubank (1979)
Särndal (1962)

Normal distribution

Benson (1949)
Chan and Chan (1973)
Chan and Cheng (1971, 1974)
Chan, Cheng, Mead and Panjer (1973)
Cheng (1980b)
Chernoff (1971)
Dalcher (1955)
Eisenberger and Posner (1965)
Eubank (1979, 1981a)
Govindarajulu and Rao (1968)
Higuchi (1954)
Kulldorff (1963b, 1964a)
Mosteller (1946)
Ogawa (1951, 1977a,b)
Pearson (1920)
Sarhan and Greenberg (1962)
Särndal (1961, 1962)
Sheppard (1899)
Yamanouchi (1949)

Pareto distribution

Chan and Cheng (1973, 1974)
Cheng (1975)
Eubank (1979, 1981a)
Kulldorff and Vännman (1973)
Umbach, Ali and Hassanein (1981)

Rayleigh distribution

Cheng (1975, 1980a)

Weibull distribution

Chan and Cheng (1974)
Chan, Cheng and Mead (1974)
Cheng (1975)
Dubey (1967)
Eubank (1979)
Hassanein (1971)
Särndal (1962)

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER 162	2. GOVT ACCESSION NO. AD-A116445	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) A BIBLIOGRAPHY FOR THE ABLUE		5. TYPE OF REPORT & PERIOD COVERED Technical Report
		6. PERFORMING ORG. REPORT NUMBER 162
7. AUTHOR(s) R. L. Eubank		8. CONTRACT OR GRANT NUMBER(s) N00014-82-K-0207
9. PERFORMING ORGANIZATION NAME AND ADDRESS Southern Methodist University Dallas, Texas 75275		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS NR 042-479
11. CONTROLLING OFFICE NAME AND ADDRESS Office of Naval Research Arlington, VA 22217		12. REPORT DATE June 1982 13. NUMBER OF PAGES 13
14. MONITORING AGENCY NAME & ADDRESS(if different from Controlling Office)		15. SECURITY CLASS. (of this report) 15a. DECLASSIFICATION/DOWNGRADING SCHEDULE

16. DISTRIBUTION STATEMENT (of this Report)

This document has been approved for public release and sale; its distribution is unlimited. Reproduction in whole or in part is permitted for any purpose of the United States Government.

17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)

18. SUPPLEMENTARY NOTES

19. KEY WORDS (Continue on reverse side if necessary and identify by block number)

Asymptotically best linear unbiased estimator; optimal grouping; optimal spacings; optimal stratification; quantiles.

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

A bibliography is provided for publications pertaining to the asymptotically best linear unbiased estimators (ABLUE's) of location and scale parameters based on a subset of the sample quantiles and the associated problem of optimal quantile, or spacing, selection. Applications of the estimators to problems of hypothesis testing, percentile estimation and robust statistical inferences are also included. A selected set of references is provided which discuss the relationship between the problem of optimal spacing selection and other

DD FORM 1 JAN 73 1473 EDITION OF 1 NOV 65 IS OBSOLETE
S/N 0102-014-6601

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

(20. Continued) statistical problems of optimal grouping, regression design for continuous time regression and optimal stratification.

ILMED
8